OSPI 1/12/07

Progress-monitoring in content areas: RTI in the upper grades

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Making the shift to a new paradigm, like RTI, does not simply involve accepting a new set of skills. It also involves giving up certain beliefs in favor of others. At the very least it means coming to understand both systems so that you can make responsible efforts to apply them when called upon to do so.

First Primary Shift: Sequence

- *The first shift one needs to make when moving to an RTI-PS process is to get the **sequence** right. You have to know what intervention is appropriate for the student before you can decide if the student even needs compensatory funding.*

2nd Primary Shift: Point of Inquiry

The central question is not:

"What about the learner is causing the performance discrepancy?"

but

"What about the *interaction* of the curriculum, instruction, learner and learning environment should be altered so that the child will learn?"

This shift in the central point of inquiry alters everything else

The Problem is not the Disability!

When we shift the focus:

We get;

- a de-emphasis on the use of measures designed to correspond to theories about abilities and disabilities.

When we shift the focus:

- we become immediately interested in measures which directly sample the curriculum and that are sensitive to instruction.

➢ That is because the emphasis of our inquiry is the target of the educational interaction---*learning*:

(how the student's behavior is *changing*)

Thinking differently about measurement and evaluation

→Shifting the emphasis from Measurement to Evaluation.

→Shifting the focus from unalterable to alterable variables.

→Shifting to targeted evaluation.

→Shifting from high to low-inference measures.

→Shifting from summative to formative evaluation.

Evaluation Planning Matrix

	RELEVANT KNOWN	RELEVANT UNKNOWN
INSTRUCTION		
CURRICULUM		
ENVIRONMENT		
LEARNER		

Learning to Learn:

- **Learning is influenced by the quality of teaching, the nature of tasks, and student characteristics.**
- **The student characteristics of greatest importance to a teacher are those that are alterable. These are the skills, strategies, perceptions, expectations, and beliefs that students learn.**
- **All of these are lumped under the heading *prior knowledge*.**
- **A student's prior knowledge (about the content of the lesson) is the primary restriction and aid to her learning.**

	I Q Score	
	70	100
2 Place Addition W/Carry	NP	NP
2 Place Addition W/O	P	NP
Column Add	P	NP
Place Value	P	NP
Add Facts	P	P
Counting	P	P

Thinking differently about decision-making

→Shifting the focus of decision-making from the students to the **learning interaction**

→Shifting from deciding about pathology to deciding about **needs** (what to be done for the student)

→Shifting to decisions based on a **dual discrepancy** definition of need

Shifting to a dual discrepancy definition of **need**

- This impacts the sorts of measures we use
  - Curriculum-based Measurement **CBM**
- Through progress data, we actually see learning as it occurs
- This puts us in a powerful position relative to understanding and correcting learning problems
- *the most instructionally relevant evidence is information about what instruction does and doesn't work for* **this** *student*

Why Use a Problem Solving Approach?

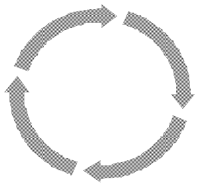
#1 Results in a "solution" for **every** problem

- Model is not just conceptual but practical
- Multidisciplinary ... it actually increases teaming
- Preventative / early intervention focus
- Increases amount of services to children
- Increases parental awareness and involvement
- Frees staff to make professional decisions
- Limited only by teams in ability to generate solutions
- Emphasis is always on least-restrictive environment
- Emphasis is on exit as much as entrance
- Uniform procedure across levels of severity
- Matches our beliefs about education for all kids ...

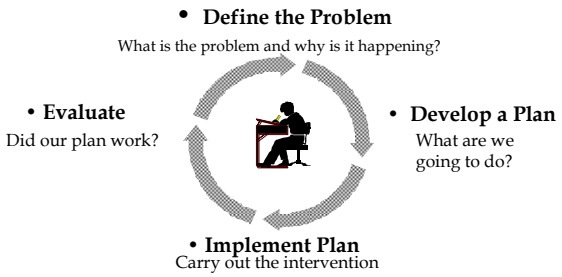
Problem Solving Process

• A process that includes a systematic analysis of students' behavior or academic difficulties, with this analysis and any assessment activities providing the foundation for a planned, systematic set of interventions, which are monitored and evaluated to determine effectiveness.

The Problem Solving Process



The Problem Solving Process



Steps in Problem Analysis

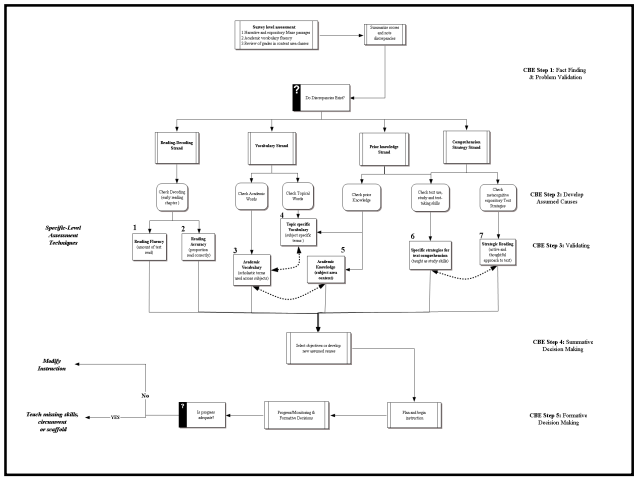
- **Step One** - Gather known and unknown information using RIOT procedures in the areas of environment, curriculum, instruction, and learner (Fact Finding)
- **Step Two** -Apply professional knowledge of content (Content Knowledge)
- **Step Three** - Generate Hypotheses and Predictions (Assumed Causes)
- **Step Four** - Validate Hypotheses (Record results of data collection)
- **Step Five** - Link assessment to intervention (Indicate and write the intervention to be implemented).

"Unalterable" variables:

- "Unalterable" variables are those which educators can not be reasonably expected to change.
- They are sometimes called "Distal Variables" as they do not have a direct and immediate impact on the quality of lessons.
- Unalterable variables are poor predictors of *individual* student learning.
- Some examples of unalterable variables are the student's family conditions, the economic status of the school and the presence of a student disability.

"Alterable" variables:

- Educators can reasonably be expected to change these through, or during, the process of instruction.
- They are sometimes called "Proximal Variables" as they are close to the leaning event and have been shown to directly and immediately effect the quality of learning.
- Alterable variables are the best predictors of individual student learning.
- Some examples of proximal variables are the *student's prior knowledge of the lesson*, the sequence and structure of the lesson and the instructional management skills of the teacher.



Survey Level Status Sheet

IF THE STUDENT MAKES THIS ERROR:	THEN THIS IS THE PROBLEM:	DOES THE STUDENT HAVE THE SKILLS?
	1. Reading-Decoding Strand	☐ ☐ ☐ YES NO UNSURE
Student decodes grade level words without fluency or accuracy		
Re-reading needed to improve passage accuracy Reasonably fluent with short words but not with multi-syllabic Student often inserts words that violate meaning and/or guesses at words		
Student frequently must "sound out" words. Student misapplies decoding rules.		
Student frequently makes errors that violate the meaning of the passage/text (including *the little words* such as, and, or, if…)		
Student fails to demonstrate comprehension but passes tests of decoding and prior knowledge.	**2. Vocabulary Strand**	YES NO UNSURE ☐ ☐ ☐
Student defines words only in isolation or provides their most common definition while passage reading.		
Student misses context-dependent vocabulary questions.		
Errors on maze or cloze exercises excessive (cloze > 20% errors; maze errors > 10%) and often syntactically correct but semantically incorrect.		
Comprehension increases and errors decrease dramatically when key words are introduced prior to reading.		
Student makes many non-meaningful substitutions of words or words that violate the meaning of the text/passage.		

Academic English is the KEY to the Scholastic Success After 3rd Grade

ALL Students are ELL in terms of Academic English

Academic English must be directly TAUGHT

It is NOT natural language!!

Vocabulary deficiencies are a primary cause of the academic failure of students in 3rd-12th grade (e.g., Becker, 1977).

There are at least three reasons for this:

- first, vocabulary accounts for an estimated **70%-80%** of text comprehension (e.g., Becker, 1977; Carroll, 1971; Howell, Fox & Morehead, 1992);
- second, the acquisition of the sophisticated fact systems and higher order principles embedded in subject area content depend on knowledge of more basic terminology and verbal concepts (e.g., Becker, 1977, 1986; Gange, 1985; Kolb & Wishaw, 1996, Prawat, 1989; Rosenshine, 1996;Tennyson & Rasch, 1988); and,
- third, students are expected to use vocabulary to demonstrate knowledge and understanding of subject area content (e.g., Baumann & Kameenui, 1991; Norris, 1992; Stanovich, 1986; Vacca & Vacca, 1986).

"The relation between reading comprehension and vocabulary knowledge is strong and unequivocal. Although the causal direction of the relation is not understood clearly, there is evidence that the relationship is largely reciprocal."

Baker, Simons & Kameenui (1998)

- The ease or fluency with which students can access vocabulary during the learning process substantially determines the trajectory of their school experience. Vocabulary is a bridge that connects the word-level processes of reading and listening to the broader cognitive process of comprehension (Kamil & Hiebert, 2005).

Lack of Research

- While the Research Institute of Progress Monitoring compiled a list of over **300** published peer reviewed articles on the use of CBM, less than **20** *directly focus on the use of CBM with middle school or high school learners* and even fewer *emphasized the use of CBM for monitoring learning in academic content areas* (Research Institute for Progress Monitoring, 2005).

Academic English

- ✓Students were taught to read using narrative/literature strategies
- ✓The language of texts is expository/informational
- ✓like a second language to many students
- ✓80% of secondary reading is informational
- ✓95% of adult daily reading is informational

Academic Language

Linguistic Components

1. **Lexical** – vocabulary knowledge, forms of words & how words are formed (roots, affixes, etc).
2. **Grammatical** – syntax, punctuation, noun-verb agreement, sentence/paragraph structures, etc.
3. **Sociolinguistic** – register use – family/friends/boss/teacher/etc. language rules & usage in different formats-(e.g. business letter, email, instant messaging), cultural assumptions, etc.
4. **Discourse** – common and specialized devices used to organize & structure language: transitions, sequences, intros, etc.
5. **Background knowledge** – content specific information

Research Support for Marzano's Assertion

Vocabulary - - Instructional Variables

> Of 4,469 minutes of reading instruction in ½ year, teachers taught vocabulary on 19 minutes (that's 00.4%). Durkin (1979)

> Connie Juel found 3rd, 4th, and 5th grade teachers taught vocabulary 1.67 minutes a day.

* Most often, they spent none (0)!

The *Academic Word List* is not restricted to a specific field of study. Knowledge of the most high-incidence academic words in English can significantly boost a student's comprehension of school-based reading material

Research: see Coxhead
http:/www.wuv.ac.nz/lals/div1/awl/

"Mortar" words – the academic English of all content domains (e.g. analyze, principle, context).

"Brick" words are very content specific and do not generalize very well (e.g. lava, isotope).

See http://www.vuw.ac.nz/lals/research/awl/ for more information on the linguistics of "brick & mortar words" and a copy of the *Academic Word List* by Averil Coxhead.

Word Types
(Beck et al., 2002)

Tier 1: Basic	Tier 2 Frequent Academic		Tier 3: Content Specific	
home	analyze		volcano	
dog	approach		lava	
happy	role		pumice	
see	consist	"Mortar" words	glaciated	"Brick" words
come	major		abdominal	
again	require		peninsula	
find	significant		molt	
go	vary		phonological	
look	interpret		diphthong	
boy	respond			
	consequence			

Research: see Coxhead http:/www.wuv.ac.nz/lals/div1/awl/

Choosing Good Tier Two Words to Teach

Gr. 2: Wolf, Becky Bloom

swashbuckling
slunk
passion
genie
emerging
knocked
racket
emergency
concentrate
impressed

1. **Important** – useful for skilled language users, kids could apply to many stories, situations, etc.
2. **Instructional potential** – easy to teach, help kids build rich representations
3. **Conceptual understanding** – kids know the basic concept

Vocabulary Knowledge Words From Science Article (Gr. 5-7)

severe, adj.
acute, adj.
to recover, v.
affects, v.
suggests, v.
to advise, v
suspended, v.

Primarily "mortar" or high utility academic words, very generalizable

vaccine, n.
syndrome, n.
disease, n.
symptoms, n
infected, v.

Primarily Lesson "Bricks" or topic specific, will not generalize too well

Evaluation formats

- Word sorts
- Short answer
- Attribute recognition/listing
- Structured utilization
- Synonym matching

Assessment Formats

1) Add a sentence that clearly demonstrates understanding of the underlined word as it is used in this context.
2) Ask students to decide whether the underlined word makes sense in this context. If yes, justify why. If no, explain why it is illogical, then change the part of the sentence that doesn't make sense.
3) Write a relatively brief, detailed, passage including words from the study list, then delete these words and leave blanks for students to complete.
4) Have students reach verbal fluency on "Brick Words" after they have learned their meanings. Test fluency using flash cards and expect rates of 30 to 40 terms per minute over a two minute sample. (any response conveying the meaning of the word is acceptable)

Word Sorts

1. Give the students a list of related terms from the text
2. Have them sort the words to go w/certain categories
3. If a word could go in more than 1 category – choose the best, circle the word, and prepare to defend their selection
4. If the meaning is unknown, place a ? – make your best guess.

Words

president – cabinet – judge – law – constitution – legality – house – senate – speaker – members – departments – supreme court – constitutionality – trials – regulations – representatives

Categories:

Legislative Branch	**Executive Branch**	**Judicial Branch**
law	president	constitutionality
speaker	cabinet	supreme court
house, senate	regulations	constitution
members	law	legality
representatives		judge
trials		law

Yes – No – Why?

- Juxtapose 2 or more vocabulary words into a question
- Requires student to think relationally using the meaning of the words to explain their answers
- Can be both a teaching strategy & assessment tool

1. Can someone recover from an fatal disease? _____
2. Do infected people always have symptoms from their illness? _____
3. People with SARS do not have a virus, they have a bacterial infection. _____

The new concept:	
Ex. Sentence:	
Syn:	**Essential characteristics:**
Definition:	**1.** **2.** **3.** **4.**
Examples:	**Non-examples:**
My Sentence:	

The new concept: **Natural Resources**

Ex. Sentence: *We must conserve energy to protect our natural resources.*

Syn: things we can use from nature

Definition:

Something found in nature, not man made, that can be used by people in various ways.

Essential characteristics:
- *Things*
- *Found in nature*
- *Useful to people*
- *Not man-made*

Examples:
- Oil
- Trees
- Natural gas

* Salt Water

Non-examples:
- Gasoline

My Sentence:

Trees are an important natural resource used for everything from building homes to making paper.

Term:

Core Idea:

Example:

Clarifiers:

Knowledge Connections

NON-example:

Example sentence:

Term: SATIRE

Core Idea: ANY WORK THAT USES WIT TO ATTACK FOOLISHNESS

Example:

*A STORY THAT EXPOSES THE ACTS OF CORRUPT POLICITIANS BY MAKING FUN OF THEM

NON-example:

*A STORY THAT EXPOSES THE ACTS OF CORRUPT POLITICIANS THROUGH FACTUAL REPORTING.

Clarifiers:

*Can be oral or written

*Ridicules or exposes vice in a clever way

*Can include irony, exaggeration, name calling, understatement

*Usually based on a real person or event

Knowledge Connections

*Political cartoons on the editorial page of our paper.

*The stories TV comics tell to make fun of the President – like Saturday Night Live.

*My Mom's humor at dinner time!

Example sentence:

Charles Dickens used satire to expose the problems of common folks in working-class England.

(see: http://www.graphicorganizers.com/)

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4. number of cubic units it takes to fill a solid		D. capacity
5. angle with a measure less than 90º		E. circumference
6. two rays that share an endpoint		F. congruent
7. reference lines from which distances or angles are measured on a coordinate grid		G. coordinates
8. perimeter of a circle		H. cube
9. having exactly the same size and shape		I. grid
10 ordered pair of numbers that give the location of a point in a coordinate grid		J. intersecting
11 regular solid with six congruent square faces		K. line
12 pattern of horizontal and vertical lines, usually forming squares		L. line segment
13 meet or cross		M. perimeter

3	transfer of heat through a fluid (liquid or gas) caused by molecular motion		C. convection
4	molecule in red blood cells that contains iron and carries oxygen throughout the body		D. digestive system
5	having to do with living things		E. electron
6	process that moves weathered rocks and soil		F. erosion
7	many different species found in a particular habitat ("variety of life")		G. fault
8	amount of 3-dimensional space that an object takes up		H. free fall
9	matter you cannot see		I. galaxy
10	resistance of an object to a change in motion		J. gases
11	liquid released by glands in the back of the mouth, speeding up chemical reactions to break down food		K. hemoglobin
12	breaks down food, preparing for the release of energy		L. inertia
13	huge collection of stars, planets, rocks, gas, and dust		M. lubricate
14	putting a substance between moving surfaces to reduce friction		N. neutron
15	unit for measuring electrical power		O. saliva

Or ----

Just use flash cards

Maze = GOM

Grandpa had (**of, to, a**) lot of patience and sat on (**can, let, his**) bucket patiently for an hour without (**it, a, on**) single bite. Jeff went down to (**closet, check, over**) on Grandpa and see if he (**pumpkin, toast, needed**) anything. It was so cold that (**good, Igor, Jeff**) could barely stand there for a (**few, him, odd**) minutes of chatting before returning to (**had, but, the**) house with an update on Grandpa's (**stopping, progress, whizzed**). Dad felt bad that the fish (**couch, coffee, weren't**) biting. As he looked out the (**looked, window, anyone**), he said with a chuckle, "Oh (**no, of, up**)!"

"No comprehension strategy is powerful enough to compensate for the inability to read the words!"

Dr. Joe Torgesen

What Does Work?

- Increase amount of independent reading
- Appropriate dictionary selection
- Teach most important words
- Teach attributes of definition
- Teach word analysis strategies
- Evaluate vocabulary appropriately
- Use appropriate instructional strategies

Beck and colleagues (Beck et al. 2002) conceptualize effective vocabulary instruction as beginning with explanations NOT definitions.
Effective explanations are characterized by:

- ✓**Language the students already know**
- ✓**Examples culled from students background knowledge/world view**
- ✓**Images, metaphors, etc. familiar to students**

Taxonomy of Meta Cognitive Activities:

Meijer, J, Veenman and van Hout-Wolters, B. H. (2006)
Educational Research & Evaluation; Vol. 12 Issue 3, p209-237

1. Orientating
Goal: to activate prior knowledge, determine the demands of the assignment and set goals for reading
Sample activities:
- survey the selection and pay attention to headings, terms or ideas emphasized by print (i.e., bold or italic)
- see if there are study questions at the end of the selection
- pay attention to illustrations including tables and diagrams
- watch for information that is repeated

2. Planning
Goal: to develop a purpose for reading and a procedure for accomplishing the purpose
Sample activities:
- make up questions to be answered or goals to be accomplished by reading the selection
- decide what specific information will be needed and it will be processed
- make predictions about what will be in the selection
- decide which parts of the selection need to read twice or reviewed later
- allocating available reading time according to the task demands (i.e., purpose for reading)
- make intentional alterations in thee reading plan if it doesn't seem to be working

3. Executing
Goal: to carry out the reading process and follow the plan
Sample activities:
- read the text actively and employ strategies for comprehension
- find useful and non-useful sections of the selection
- locate answers for pre-reading questions
- employ strategies for organizing and recording information
- read aloud if necessary
- skip portions of no value
- take notes within the text if allowed
- take notes separate from text as needed

4. Monitoring
Goal: to assure progress toward reading goal
Sample activities:
- recognizing failures to comprehend
- noticing inconsistencies or confusion about meaning within the selection
- noticing unfamiliar words, word usage or topic-specific terminology
- recognizing when a problem requires the use of a corrective strategy (i.e., deliberately pausing or going back in text; confirming the meaning of a symbol)

5. Evaluation & Checking
Goal: to assure coverage and understanding of the text
Sample activities:
- review and interpret what has been read
- note any areas of uncertainty
- note useful findings
- verify that reading goals have been accomplished

6. Elaboration
Goal: to format the textual information for application; or to apply the textual information
Sample activities:
- list and define key vocabulary, symbols and concepts
- summarize each portion of the selection at the subheading and/or section level
- summarize the entire selection
- arrive at conclusions about the content of the selection
- paraphrase what was read
- summarize what was read
- connect, compare and/contrast the information from the selection with other information
- draw inferences from the information in the selection, based on the way it relates
:

Is the category of skills OK?

	YES	NO	UNSURE
Orientating	_____	_____	_____

Goal: to activate prior knowledge, determine the demands of the assignment and set goals for reading

Question: How do you size up a selection, get ready to read and decide what you'll need to do?

Sample correct answers:
- survey the selection and pay attention to headings, terms or ideas emphasized by print (i.e., bold or italic)
- see if there are study questions at the end of the selection
- pay attention to illustrations including tables and diagrams
- watch for information that is repeated